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EFFECT OF YOGASANA AND AEROBIC EXERCISE ON SELECTED PHYSICAL VARIABLES OF UNIVERSITY WOMEN STUDENTS

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Abstract

The aim of this study is to determine the effect of yoga asana and aerobic exercises on selected physical fitness variables of university women students. Thirty healthy, untrained women subjects were selected from the hostels of Pondicherry University and their age ranged from 20 to 25 years. The subjects were equally divided into three groups namely control and two experimental groups. Control group (Group I) did not undergo any training programme rather than their daily routine work. The experimental group (Group II) underwent yoga asana practice and (Group III) were treated with aerobic exercises for forty five minutes duration for twelve weeks except Saturday and Sunday. Static balance and flexibility were measured through field tests. The flexibility and static balance was measured before and after the completion of yoga asana practice and aerobic training. The results of pre-test and post-test were statistically analyzed by using Analysis of Co-variance. The result revealed that flexibility and static balance had significant improvement due to the practices of yoga asana and aerobic training when compared to the control group. The result when compared between the two experimental groups revealed that the yoga asana group had significant effect on flexibility and static balance than the aerobic group.

Keywords: yoga asana, aerobics, Analysis of Co-variance balance, flexibility

Introduction

As we live in the age of modern science and technology, our lifestyle has become very fast. It is also becoming very hard and difficult to live a natural and normal life because of the changing scenario of the world. The very air is becoming unfit for human consumption. Our cities are highly polluted and congested. All these do create tension. The mind is always under strain due to various social constraints and evils. When we are under stress, our digestion is not proper and we may suffer from some fairly serious ailments (like Asthma and Spondilytis etc.,) and yoga asana comes to our rescue at this juncture.

Sports as a psycho-physical and social activity have both psychological and social dimensions, besides physical, physiological and technical aspects. The main objective of sports is to develop the physical and mental health in individual. Further it is essential to integrate or to bring about psycho-physical co-ordination, socialization and cultural interaction, and thus to develop a spirit of tolerance in order to promote national and international social and cultural integration and peace.[1]

Practices of Asanas, Mudras and Pranayama regularly and systematically for long period helps to find the preventives for various kinds of physical ailments. The body will be become light. Will-power assumes firmness and rigidity. Bodily fat will be reduced. Improve static motor performance. Improve physical fitness.[2]

Aerobics

A form of dance combines calisthenics and a variety of dance movements, all done to music is called aerobic dancing. Aerobic is an exercise which consist of a mixture of rhythmic running, hopping, skipping, jumping, sliding, stretching and swinging as well as a number of dance steps.[3] Aerobic dance is a vigorous physical activity that can provide an inexpensive and practical workout for most people. It increases the working capacity of the cardio vascular and pulmonary system. If done on a regular basis, it should result in increased energy, stamina, and better ability to handle life's stress and tension. It contribute to weight control and can be a mean of relaxation aerobic dance utilized various stretching, strength exercise to achieve the target heart rate and produce a various work out.[4]

Methodology

The purpose of the study was to find out the effect of selected yoga asana and aerobic exercises on selected physical variables in university women students. To achieve this, thirty healthy, untrained volunteers whose age ranged from 20-25 years were selected from the hostels of Pondicherry University. The subjects were equally divided into three groups namely one control and two experimental groups. The experimental group (Group II) underwent yoga asana practice and experimental group (Group III) underwent aerobic exercise for twelve weeks except Saturday and Sunday for 45 minutes duration in the morning at 6.30am. Control group was kept under control without any training programme. Static balance was measured by storkestand and flexibility was measured by sit and reach test (Barry L. Jack and Nelson, K. 1982). The results of pre and post- test were compared by using Analysis of Covariance (ANCOVA).

Table 1: Analysis of Co- Variance on Static Balance and Flexibility among Yoga Asana Group, Aerobic Group and the Control Group

Variables	Test	Control group	Yoga asana group	Aerobic group	Source of variance	Sum of square	df	Mean square	F ratio
Flexibility	Pre test	27.55	27.25	27.70	Between	1.05	2	0.53	0.04
					With in	335.45	27	12.42	
	Post test	27.65	29.95	32.35	Between	110.47	2	55.23	5.06*
					With in	294.78	27	10.92	
	Adjusted Post test	27.60	32.17	30.18	Between	104.72	2	52.36	61.16*
					With in	22.26	27	0.86	
Static Balance	Pre test	9.60	9.70	9.80	Between	0.20	2	0.10	1.01
					With in	302.10	27	11.19	
	Post test	9.40	14.80	13.40	Between	157.07	2	78.53	6.12*
					With in	346.40	27	12.83	
	Adjusted Post test	9.50	14.80	13.30	Between	149.58	2	74.79	26.92*
					With in	72.22	27	2.78	

* Significant at 0.05 level.

The table value required for significance at 0.05 level of confidence with degrees of freedom 2 and 27 are 3.35 respectively.

The pre test means of control group and two experimental groups on flexibility is 27.55, 27.70 and 27.25 and the obtained 'F' ratio value is 0.04. The post test means of control group and two experimental groups is 27.65, 32.35 and 29.95 and the obtained 'F' ratio value is 5.06. The adjusted post test means of control group and two experimental groups are 27.60, 30.18 and 32.17. The obtained 'F' ratio is 61.16. The results of the study indicate that there is a significant difference among the control group and two experimental groups on flexibility.

The pre test means of control group and experimental group on static balance is 9.60, 9.70 and 9.80 and the obtained 'F' ratio is 0.01. The post test means of control group and two experimental groups are 9.40, 14.80 and 13.40 and the obtained F' ratio is 6.12. The adjusted post test means of control group and two experimental groups are 9.50, 14.80 and 13.30 and the obtained 'F' ratio is 26.92. The results of the study indicate that there is a significant difference among the control group and two experimental groups on static balance.

Since the result showed significant difference among the three groups, the Scheffe's post hoc test was used to find out the significant difference between the paired means.

Ordered Adjusted Means and Difference between Means for Two Experimental Group and Control Group on Flexibility

YOGA ASANA PRACTICE	AEROBIC TRAINING	CONTROL GROUP	MEAN DIFFERENCES
32.17	30.18	-	1.99
32.07	-	27.60	4.56
-	30.18	27.60	2.57

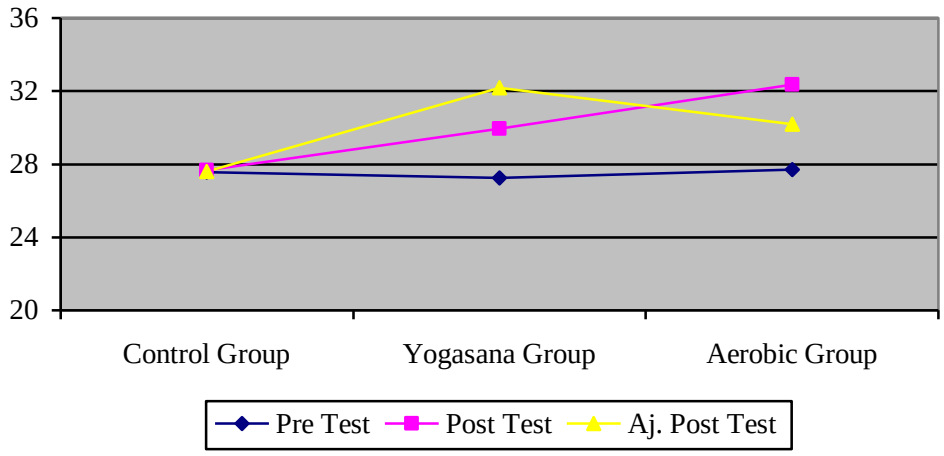
* Significant at 0.05 level.

Scheffe's confidence interval at 0.05 level is 1.07

The above table shows that the Scheffe's post-hoc method of testing the significance for the differences between the paired means following a significant analysis of co variance for yoga asana practice group, aerobic exercise group and control groups. The adjusted mean on flexibility in the order of magnitude and the difference between this means for the control and experimental groups is given in the table. The mean differences between

the yoga asana practice group and aerobic training group is 1.99, which is significant at 0.05 level of confidence interval. In the comparison between the yoga asana practice group and control group the difference is 4.56, which is significant at 0.05 level of confidence interval. The mean differences between the aerobic training group and control group 2.57, is significant at 0.05 level of confidence interval. The result indicates that the yoga asana practice group had a significant improvement on flexibility when compared to the aerobic training group and control group.

The differences in means of yoga asana practice group, aerobic training group and control group is presented in figure given below



Ordered Adjusted Means and Difference between Means for Two Experimental Groups and Control Group on Static Balance

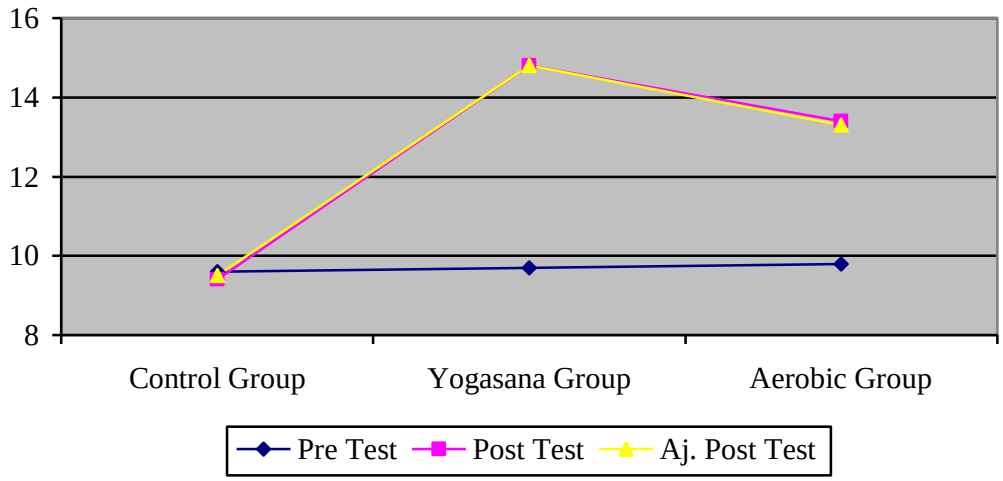
YOGA ASANA PRACTICE	AEROBIC TRAINING	CONTROL GROUP	MEAN DIFFERENCES
14.80	13.30	-	1.50
14.80	-	9.50	5.30
-	13.30	9.50	3.18

* Significant at 0.05 level.

Scheffe's confidence interval at 0.05 level is 1.94

The above table shows that the Scheffe's post-hoc method of testing the significance for the differences between the paired means following a significant analysis of co variance for yoga asana practice group, aerobic exercise group and control groups. The adjusted balance efficiency means in order of magnitude and the difference between this means for the control and experimental groups is given in the table. The mean differences between the yoga asana practice group and aerobic training group is 1.50, which is significant at 0.05 level of confidence interval. In the comparison between the yoga asana practice group and control group the difference is 5.30, which is significant at 0.05 level of confidence interval. The mean differences between the aerobic training group and control group is 3.18, which is significant at 0.05 level of confidence. This indicates that the yoga asana practice group had a better improvement when compared to the aerobic training group and control group.

The differences in means of yoga asana practice group, aerobic training group and control group is presented in figure given below



Discussion

The study was framed to analyze the effect of selected yoga asana and aerobic exercises on selected physical variables in university female students. The experimental group I underwent yoga asana practice and experimental group II underwent aerobic training for twelve weeks except Saturday and Sunday with the duration of 45 minutes per day in the morning hours at 6.30 am. The selected physical variables are flexibility and static balance.

It is observed from the study that the pre test results did not reveal any significant differences among control and experimental groups. But the post test results of control and two experimental groups has revealed significant difference in favour of the two experimental groups.

In the analysis of co-variance for the selected physical variables namely flexibility and balance, it is seen that there is a significant difference among the three groups which throws light on the application of yogasana practice and aerobic training .From the

statistical analysis it is clear that practice had its own effects. The effect of yoga asana and aerobics had shown significant effect when compared to the control group.

The result of the study is in consonance with the findings of the following studies by Czamara & Joli Michele, (February 2003)[5], Ray, et. al., (January 2001)[7]. Tran et.al., (April, 2001)[8], K. Bharatha Priya & R. Gopinath, (August, 2011)[9], K.M. Manimakali and S.Chitra, (August, 2011)[10].

Conclusion

The results of the study indicate that the static balance and flexibility has significantly improved after twelve weeks of practicing yoga asana and aerobics. It is finally concluded that the yoga asana has shown better improvement than the aerobic training on flexibility and static balance.

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